

Translation

PATENT COOPERATION TREATY

PCT/EP2003/014836



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference F103R249PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2003/014836	International filing date (day/month/year) 23 December 2003 (23.12.2003)	Priority date (day/month/year) 23 April 2003 (23.04.2003)
International Patent Classification (IPC) or national classification and IPC F24F 12/00		
Applicant FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

Date of submission of the demand 15 October 2004 (15.10.2004)	Date of completion of this report 01 August 2005 (01.08.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ The international application as originally filed/furnished
- ☒ the description:
- pages _____ 1-18 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ 1-23 _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages _____ 1/5-5/5 _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/14836

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-21	YES
	Claims		NO
Inventive step (IS)	Claims	1-21	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: DE-A-199 09 286
D2: US-A-5 898 995
D3: DE-A-30 35 322
D4: DE-A-30 06 318
D5: WO-A-99/13272
D6: DE-A-100 58 273.

Document D1 is considered to be the closest prior art for the subject matter of claim 1. D1 discloses (the references in parentheses are to D1):

a heat pump comprising a refrigeration circuit in which a refrigerant evaporator (22; see figure 2 and the description) is provided.

The subject matter of claim 1 differs therefore from the known heat pump by the features of the characterizing portion of claim 1, in particular by the design of the refrigerant evaporator as a combined fluid-air evaporator with lamella-like surface elements that enter into thermal contact with a directed air flow.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

D1 discloses a refrigerant-coolant evaporator which is designed as a liquid-liquid heat exchanger.

The problem addressed by the present invention can therefore be considered that of developing the refrigerant evaporator in such a way that the operating safety and service life of the heat pump components of the circuit are improved.

The solution to this problem as proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons: although a combined fluid-air evaporator as per the characterizing portion of claim 1 is already known *per se* (see, *inter alia*, D2 or D3), the use of a combined fluid-air evaporator of this kind in a heat pump cannot be derived from D2 or D3. Consequently, a person skilled in the art is not prompted to combine the two documents (D2 with D1, or D3 with D1). An inventive step can therefore be acknowledged for claim 1.

Claims 2 to 6 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step.

It should also be noted that the ventilation arrangement as per claim 7 contains a refrigerant evaporator of a heat pump according to any one of the claims 1 to 6, and therefore claim 1 also meets the PCT requirements for novelty and inventive step, even though a ventilation arrangement for a building with heat extraction from an exhaust air stream which is directed out of the building and which enters into contact with an outside air stream and is in thermal contact with a refrigerant evaporator via an air-air heat exchanger, is already known from D4, D5 or D6.

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Claims 8-21 are dependent on claim 7 and therefore likewise meet the PCT requirements for novelty and inventive step.